



Humanizing sociotechnical transitions through energy justice: An ethical framework for global transformative change

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ABSTRACT

Poverty, climate change and energy security demand awareness about the interlinkages between energy systems and social justice. Amidst these challenges, energy justice has emerged to conceptualize a world where all individuals, across all areas, have safe, affordable and sustainable energy that is, essentially, socially just. Simultaneously, new social and technological solutions to energy problems continually evolve, and interest in the concept of sociotechnical transitions has grown. However, an element often missing from such transitions frameworks is explicit engagement with energy justice frameworks. Despite the development of an embryonic set of literature around these themes, an obvious research gap has emerged: can energy justice and transitions frameworks be combined? This paper argues *that they can*. It does so through an exploration of the multi-level perspective on sociotechnical systems and an integration of energy justice at the model's niche, regime and landscape level. It presents the argument that it is within the overarching process of sociotechnical change that issues of energy justice emerge. Here, inattention to social justice issues can cause injustices, whereas attention to them can provide a means to examine and potential resolve them.

1. Introduction

Amidst serious sustainability challenges, transitions frameworks have evolved to either conceptualize or facilitate decarbonised energy systems that provide both security of supply and universal access to energy; a process that it is widely acknowledged will require new ways of producing, living and working with energy (Bridge et al., 2013; Heffron and McCauley, 2018; IEA, 2008; Mernier, 2007). In aiming to implement sociotechnical solutions, governments are increasingly utilising the language of transitions, and the concept has begun to feature in the energy policies of countries including Denmark, Switzerland and the United Kingdom (UK) (Foxon, 2013; Lovell, 2007; Bolton and Foxon, 2015). In tandem, although not explicitly termed as such, key aspects of energy justice debates have been discussed, and in some cases, remedied, since at least the late 1970s and early 1980s (Halff et al., 2014; Barbour, 1980; Smil and Knowland, 1980; Richards, 1981; Parfit, 1981; Barry, 1981; Perez-Guerrero, 1982; Weiberg, 1985). This paper identifies where transitions focuses are present, the resultant material and social transformations are imbued with contestations over what is just, equitable, and right. Thus, it calls for greater engagement with the three-tenet energy justice approach (distributional justice,

procedural justice and justice as recognition) when planning for more sustainable transitions. “By “energy transition” we mean “a change in an energy system, usually to a particular fuel source, technology, or prime mover (a device that converts energy into useful services, such as an automobile or television)” (Sovacool, 2016). By “transformation” or “transformational change” we refer to complex, unpredictable, frequently unprecedented and radical outcomes (Roggema et al., 2012: 2530).”

Scholars frequently envision the process by which sustainability transitions take place to be one of transformative change through transformative innovation (Hiteva and Sovacool, 2017; Schot and Steinmuller, 2016; Markard et al., 2012; Wilson and Tyfield, 2018; Wilson, 2018; Geels, 2018; Dütschke and Wesche, 2018). As a result, those advocating for transformational change sometimes argue that it has the potential to present more inclusive, robust solutions to sustainability challenges because it involves stakeholders from the outset, whether they are large organisations or small NGO groups that can effect grassroots change (Schot and Steinmuller, 2016). For instance, Linnenluecke et al. (2017) identify that planning for transformational change recognises that environmental challenges present opportunities to meet the (currently unmet) needs of those at the ‘bottom of the

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pyramid’ – including the poorest of the poor (see also Bezboruah and Pillai, 2013; McAlpine et al., 2015; Tebo, 2005). Lawhon and Murphy (2011) outline that the concerns of small groups can be overruled by political or investor interests. There appears, then, emerging consideration for particular sectors of society who are seen to deserve more just outcomes.

Yet despite ongoing debates about ethics or justice across many fields of literature (including extended discussions between antagonist camps that have gone on across the history of political philosophy), one social element missing from transitions frameworks is explicit, practice-oriented engagement with the energy justice concept and related approaches to justice concerns. Eames and Hunt (2013) draw attention to the fact that considerations of equity and justice are underrepresented within the sociotechnical transitions literature and the wider energy transitions debate, despite the fact that the concept of sustainable development, the target of many transition plans, is inherently rooted in these core notions (Hopwood et al., 2005). Transitions literatures can also fail to give due consideration to issues of landscape, health and existing property values too (Jefferson, 2017).

Failure to adequately engage with questions of justice throughout the transition process is dangerous. It may lead to aggravated poverty, entrenched gender bias and non-participation as outcomes or by-products of ‘blinkered’ decision-making. Indeed, without a focus on justice, transitions may fail to acknowledge the burdens of having too much energy, such as waste, over-consumption and pollution, or from not having enough, where some individuals lack access, are challenged by under-consumption and poverty, and may face health burdens and shortened lives as a consequence of restricted energy choices (Sovacool et al., 2016a). This paper therefore utilizes the energy justice concept as a way of engaging with these ethical dilemmas *within* pre-existing transitions frameworks.

The paper proceeds as follows. The next section gives brief background on the format of the energy justice concept and one of the most dominant transitions models, the multi-level perspective (the MLP) on socio-technical systems—text we purposefully keep short both as it will largely be familiar to readers of this journal, and also to allow a focus on our main areas of development. Following this, the proceeding sections deliver the core conceptual advances, a proposed structure for linking the energy justice and technological innovation within the MLP. The final section concludes with a synthesis of the earlier arguments and a reflection on future research.

Throughout, we present three main claims, each coinciding with a level in the MLP model; the niche, regime, and landscape:

- (1) That the energy justice concept can expose exclusionary and/or inclusionary technological and social niches before they develop, leading to potentially new *and* socially just innovation;
- (2) That in addition to using the MLP to describe regimes, the energy justice framework provides a way for these actors to normatively judge them, potentially destabilising existing regimes using moral criteria;
- (3) That framing energy justice as a matter of priority at the landscape level could exert pressure on the regime below, leading to the widespread reappraisal of our energy choices, and integration of moral criteria.

Across all of its parts, the paper emphasises the need for *socially just* sustainable energy policy as part of the re-imagined transition policy agenda. We frame this as a fundamentally political process as recognition that energy justice can only be inserted into the MLP process if there is political support for it and if we understand political tensions and trade-offs it presents. Whilst several studies have emerged that consider the role of energy justice in the sociotechnical transitions process (Mullen and Marsden, 2016; Eames and Hunt, 2013; Fuller and Bulkeley, 2013; McLaren et al., 2013), we believe this is the first to explore the role of energy justice in the MLP model.

2. New directions: Integrating energy justice and sociotechnical transitions theory

First, we briefly describe the energy justice challenge and framework and the MLP model before Section 3 goes on to explore the approach to and benefits of combining them.

2.1. The energy justice dimension

The origins of the energy justice literature is largely reported as coming from activist accounts of energy issues using the environmental justice frame - a precursor to the energy justice concept which shares overlapping philosophical groundings (Jenkins, 2018; McCauley, 2018e; McCauley et al., 2013). Specifically, as environmental justice is commonly defined as the distribution of environmental hazards and access to all natural resources; it includes equal protection from burdens, meaningful involvement in decisions, and fair treatment in access to benefits (see Hofrichter, 1993; Hockman and Morris, 1998; Low and Gleeson, 1998; Schlosberg, 1999). This approach forms the basis of the energy justice approach and framework. However, mentions of its core notions also appear elsewhere, including in the guise of the “three A’s” of availability, accessibility and affordability. In this latter context, availability indicated the technical availability of a particular form of energy; accessibility the opportunity of those in a particular geographic location to access it and its associated services; and affordability the capacity of whole populations and sections therein to afford such energy services (see Goldemberg et al., 2000, which lists equity as one of the first goals of society, Johansson and Goldemberg, 2002; Reddy, 1985).

Across all literatures, key arguments around energy transitions have emerged, including considerations of the political economy of actors involved—the incumbents who stand to win or lose from transition processes, for example, and as a follow-on consideration, the support necessary for communities and businesses going through socio-technical change (see Harvey, 1996; Barnett, 2016; Young, 1990; Walker and Bulkeley, 2006; Walker, 2012; Schlosberg, 2013, 2004). Yet, on the whole, the ‘socio-’ or social element is frequently missing in the transitions literature and transition plans (see Sovacool et al., 2016a; Jamieson, 2014; Markowitz and Shari, 2012; Swilling and Annecke, 2012; Newell and Mulvaney, 2013; Goldthau and Sovacool, 2012; Hiteva and Sovacool, 2017). Eames and Hunt (2013: 58) note in this regard, that even ‘a “low-carbon” transition has the potential to distribute its costs and benefits just as unequally [as historical fossil-based transitions] without governance mindful of distributional justice’ or, as an extension, without attention to the issues of justice as recognition and due process – energy justice tenets we explore below. We argue that the energy justice concept provides one way of filling this gap.

Calls for transitions dynamics geared towards questions of ethics and justice must include concern for fairly distributing energy infrastructure and services, allowing equal access to decision-making, and fostering crosscutting participation of marginalised groups – a wider conception of the causes and forms of injustice present in current transitions thinking. This may also include consideration of the likely future wishes of those currently marginalised – their (and their descendants’) wish to see landscapes and historical assets in the same way that proceeding generations have done, for example (Jefferson, 2017). Echoing these areas of focus, we limit the philosophical groundings of energy justice to distributional justice, procedural justice and recognition-based tenets. We utilise the framework of Fuller and Bulkeley (2013) who focus on the application of distributional justice and procedural justice tenet considerations in energy justice, based on the works of Rawls (1971), and, in line with McCauley et al. (2013), add to this a ‘recognition-based’ approach from the works of Fraser (1999, 2014).

Distributional justice¹ is concerned with the impacts of infrastructure, justice as recognition represents a concern for processes of

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